

RECEIVED
CENTRAL FAX CENTER

FEB 22 2007

Katten

Katten Muchin Rosenman LLP

575 Madison Avenue
New York, NY 10022-2585
212.940.8800 tel
212.940.8896 fax**Facsimile**

To	Company	Fax Number	Phone Number
1. Examiner Rudy Zervigon	USPTO - GAU 1763 Re: 09/807,589 Confirmation No.: 9681	1-571-273-8300	

Date	Client/Matter Number
February 21, 2007	SAIC 18.550 (100788-09749)
From	Attorney Email Address
Hassan Shakir	Hassan.Shakir@kattenlaw.com
Phone	Fax
212.940.6489	212.940.8986

Total number of pages, including cover letter: 8
If you do not receive all of the pages, please call: 212.940.8800

Comments**7 pages - RESPONSE TO OFFICE ACTION****For Messenger Department Use Only**

Your fax has been sent. Attached is your original.

Date _____ Time _____

Signature _____

Important

This facsimile transmission contains information intended for the exclusive use of the individual or entity to whom it is addressed and may contain information that is proprietary, privileged, confidential and/or exempt from disclosure under applicable law.

If you are not the intended recipient (or an employee or agent responsible for delivering this facsimile transmission to the intended recipient), you are hereby notified that any copying, disclosure or distribution of this information may be subject to legal restriction or sanction. Please notify the sender by telephone to arrange for the return or destruction of the information and all copies.

NEW YORK CHARLOTTE CHICAGO IRVING LONDON LOS ANGELES PALO ALTO WASHINGTON DC WWW.KATTENLAW.COM

LONDON AFFILIATE: KATTEN MUCHIN ROSENMAN CORNISH LLP

A limited liability partnership (including professional corporations)

84178132_1
NYC01_84197882_1_100788_09749 2/22/2007 1:59 PM

RECEIVED
CENTRAL FAX CENTER

FEB 22 2007

Certificate of Facsimile Transmission

I hereby certify that this paper is being facsimile transmitted to (571) 273-8300 at the U.S. Patent and Trademark Office on February 22, 2007.

Christina Colocotronis

Christina Colocotronis

ATTORNEY DOCKET NO.: SAIC 18.550 (100788-09749)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor : Franco PRETI
Serial No. : 09/807,589
Confirmation No : 9681
Filed : April 12, 2001
Title : REACTION CHAMBER FOR AN EXPITAXIAL REACTOR
Examiner : Rudy Zervigon
Group Art Unit : 1763

February 22, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION

S I R:

In response to the Office Action mailed December 22, 2006 and declared final; please charge any fee due with this paper, including any extension fee, to Deposit Account 50-1290; please amend the subject application as follows:

1

US 09/807,589

SAIC 18.550 Response to OA of 12.22.2006_84197843_1_100788_09749

RECEIVED
CENTRAL FAX CENTER

FEB 22 2007

IN THE CLAIMS

1. (previously presented) An improved reaction chamber for an epitaxial reactor comprising a belljar having a shoulder and made of insulating and transparent material, a susceptor provided with disk-shaped cavities for receiving wafers of material to be treated and having an insulating and chemically resistant flat plate arranged above it, comprising:

a diffuser formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect said annular chamber of the cap to a dome zone of the belljar situated just underneath a neck connecting an upper flange to the dome, said plurality of pipes ensuring a uniform distribution of flow at a lower speed;

a cylindrical zone of the belljar extended above the flat plate supported above the susceptor so as to eliminate any interference between the flat plate and shoulder;

a minimum internal diameter of the belljar so as to keep the belljar as far away as possible from the susceptor; and

on the corners of the susceptor, in its upper zone, projecting baffles inserted into recesses formed in the body of the said susceptor, said baffles extending longitudinally at half the height of the susceptor;

wherein the cap of the diffuser is fixed to an annular flange which is in turn fixed to an upper thickened flange of the belljar by means of a pair of two half counter-flanges gripping the annular flange against the upper thickened flange of the belljar; and

wherein the fixing of the cap of the diffuser to the annular flange is performed by means of a plurality of spring-loaded tie-rods which push in an elastic manner the cap against the annular flange.

2. - 3. cancelled

4. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 1 wherein the cap is closed at the top by a flange terminating in a dome-piece communicating with a sleeve for connection to an external source of gas to be used in the same reaction chamber, which dome-piece is provided with a bottom defining at least one circular slit for ensuring a

rigorously uniform distribution of gas to an annular chamber for supplying the plurality of pipes emerging from the distributor inside the belljar.

5. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 4 wherein in addition to the slit in the bottom, a further annular slit helps ensure the uniform distribution of gas to the annular chamber supplying the outlet pipes.

6. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 4 wherein the cap of the distributor comprises an internal chamber for the flow of a cooling fluid.

7. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 4, characterized in that the outlet pipes are made of a material which is chemically inert with respect to the gas used in the belljar.

8. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 7 wherein the outlet pipes are made of glass.

9. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 7 wherein the outlet pipes are made of ceramic material.

10. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 7 wherein the outlet pipes are made of quartz.

11. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 1 wherein the baffles fixed to the susceptor are made of material chemically inert with respect to the gases used in the said chamber.

12. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of glass.

13. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of ceramic material.

14. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of quartz.

15. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of graphite lined with silicon carbide.

16. – 18. cancelled

19. (previously presented) A reaction chamber for an epitaxial reactor comprising:

a belljar;

a susceptor inside the belljar; and

a diffuser disposed on the top of the belljar;

the belljar being made of insulating and transparent material and having an upper flange, the flange joined to a neck, a shoulder joined to a flat zone and a cylindrical zone joined to the shoulder;

the susceptor comprising a body shaped like a truncated pyramid, the susceptor being provided with disk-shaped cavities for receiving wafers of material to be treated, and supporting an insulating and chemically resistant flat plate above it, the flat plate facing the flat zone of the belljar;

the diffuser being formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect the annular chamber of the cap to a dome zone of the belljar situated just underneath its neck, the plurality of pipes feeding gases into the into the belljar and ensuring a uniform distribution of gas flow at a lower speed;

wherein the internal diameter of the cylindrical zone of the belljar is sized to keep the belljar from the susceptor; and wherein the flat plate is so arranged as to deflect gases coming from the plurality of pipes;

wherein the cap of the diffuser is fixed to an annular flange which is in turn fixed to an upper thickened flange of the belljar by means of a pair of two half counter-flanges gripping the annular flange against the upper thickened flange of the belljar;

wherein the fixing of the cap of the diffuser to the annular flange is performed by means

of a plurality of spring-loaded tie-rods which push in an elastic manner the cap against the annular flange.

20. – 26. cancelled

27. (currently amended) A reaction chamber for an epitaxial reactor comprising:

a belljar;

a susceptor inside the belljar; and

a diffuser disposed on the top of the belljar;

the belljar being made of insulating and transparent material and having an upper flange, the flange joined to a neck, the neck joined to a flat zone, the flat zone joined to a shoulder, and the shoulder joined to a cylindrical zone;

the susceptor comprising a body shaped like a truncated pyramid, the susceptor being provided with disk-shaped cavities for receiving wafers of material to be treated, and supporting an insulating and chemically resistant flat plate above it, the flat plate facing the flat zone of the belljar;

the diffuser being formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect the annular chamber of the cap to a dome zone of the belljar situated just underneath its neck, the plurality of pipes feeding gases into the belljar and ensuring a uniform distribution of gas flow at a lower speed;

wherein the internal diameter of the cylindrical zone of the belljar is sized to keep the belljar at a distance from the susceptor; and

wherein the flat plate is arranged to deflect gases coming from a vertical direction from the plurality of pipes and to guide the gases into a horizontal direction between the flat plate and the flat zone until the end of the flat plate where the gases flow vertically downward to the susceptor for improved deposition;

wherein a plurality of baffles are fixed to the susceptor and the baffles are made of material chemically inert with respect to the gases used in the said chamber;

wherein the cap of the diffuser is fixed to an annular flange which is in turn fixed to an upper thickened flange of the belljar by means of a pair of two half counter-flanges gripping the annular flange against the upper thickened flange of the belljar; and

wherein the fixing of the cap of the diffuser to the annular flange is performed by means of a plurality of spring-loaded tie-rods which push in an elastic manner the cap against the annular flange.

28. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of glass.

29. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of ceramic material.

30. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of quartz.

31. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of graphite lined with silicon carbide.

32. cancelled.

page 8 cut off.